## SECTION II. (AMENDMENTS TO THE CLAIMS)

A listing of claims 1-60 of the present application, as emended/added herein with markings showing changes made, is provided below:

- 1-23. (Cancelled).
- 29. (Currently amended) A layered structure comprising: a substrate having an upper surface of single crystalline Si, and a layer of SiC over said upper surface,
- said Sidic Sic layer and said upper surface of single crystalline Si define an interface having an abrupt change in C concentration of more than 1 x 10<sup>13</sup> atoms/co over a layer thickness in the range from abou; 6 Å to about 60 Å,

and wherein the exygen in said SiC layer is less than 1 x 1017 atoms/cc.

- (Original) The layered structure of claim 29 wherein said silicon carbon alloy is single exystalline.
- Chiginal) The layered structure of claim 29 wherein said silicon carbon alloy is polycrystalline.
- 32. (Currently amended) The layered structure of claim 29 further including a layer of Si ever said layer of SiC, said 8:C/Si-layer SiC layer and said Si layer define an interface having an abrupt change in C concentration above 1 x 10<sup>18</sup> atoms/cc over a layer trickness in the far.ge from about 6 Å to about 60 Å and wherein the oxygen in said Si layer is less than 1 x 10<sup>17</sup> atoms/cc.
- 33. (Currently amended) The layered structure of claim 29 waterein said layer of SiC includes a p-type dopant in the range from about 1 x 10<sup>18</sup> to about 1 x 10<sup>21</sup> atoms/x

and wherein said <u>SIC ayer with said</u> p-type dopant profile can withstand furnace anneals to temperatures of 850° C and capid thermal anneal temperatures to 1000° C

(Original) The layered structure of claim 29 wherein said layer of SiC includes a n-type dopart in the range from about  $1 \times 10^{18}$  to about  $1 \times 10^{21}$  atoms/cc.

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- 35. (Currently ame:ided) The layered structure of claim 33 further including a layer of Si over said layer of p-type doped SiC, said p-type doped SiCE SiC leyer and said Si kyez define an interface having an abrupt change in C concentration above 1 x 1018 atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said Si layer is less than 1 x 10<sup>17</sup> atoms/cc.
- 36. (Currently amended) The layered structure of claim 35 wherein said p-type-deped SiC/Si-leyer interface defined by said p-type doped SiC layer and said Si layer has having an abrupt change in dopant concentration above 1 x 1018 atoms/cc over a layer thickness in the targe from about 6 Å to about 60 Å.
- 37. (Currently arrended) The layered structure of claim 34 further including a layer of Si over said layer of n-type doped SiC, said n-type doped EiCs SiC layer and said Si layer define an interface having an abrupt change in C concentration above 1 x 1018 atomsice over a layer thickness in the range from about 6 Å to about 60 Å and wherein the oxygen in said Si layer is less than 1 x 10<sup>17</sup> atomsice.
- 38. (Currently amended) The layered structure of claim 37 wherein said <del>n type doped</del>

  SiC/Si tayer interface defined by said n-type doped SiC tayer and said Si layer has

  having an abrupt change in dopant concentration above 1 x 10<sup>18</sup> atoms/oc over a layer

  thickness in the range from about 6 Å to about 60 Å.
- 39. (Currentity amended) The layered structure of claim 29 further including a layer of StGe over said layer of StG, said StG/StGe StC layer and said StGe layer define an interface

reving an abrust change in C concentration above 1 x :0.18 atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said SiGe layer is less than 1 x  $10^{17}$  aroms/cc.

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- 4.. (Currently amended) The layered structure of claim 34 further including a layer of SiGe over said layer of n-type doped SiC, said n-t
- (Withdrawn) A layered structure comprising:
   a substrate having an upper surface of single crystalline Si, and
   a layer of SiGeC over said upper surface,

said 8:48iGe6 SiGeC layer and said upper surface of single crystalline Si define an interface having an abrupt change in C concentration above 1 x 10<sup>18</sup> atoms/cc over a layer shickness in the range from about 6 A to about 60 A,

and wherein the oxygen in said SiGeC layer is less than 1 x  $10^{17}$  atoms/cc.

- 43. (Withdrawn) The layered structure of claim 42 wherein said SiGeC layer is single crystalline.
- 44. (Withdrawn) The layered structure of claim 42 wherein said SiGeC layer is polycrystalline.

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(Withdrawn) The layered structure of claim 42 further including a layer of Si over said layer of SiGeC, said SiGeC/Si SiGeC layer and said Si layer define an interface having an abrupt change in C concentration above 1 x 10<sup>18</sup> atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said Si layer is less than 1 x 10<sup>17</sup> atoms/cc.

45.

(Witndrawn) The layered structure of claim 42 wherein said layer of SiGeC includes a p-type dopent in the range from about 1 x 10<sup>18</sup> to about 1 x 10<sup>21</sup> atoms/cc and wherein said <u>SiGeC layer with said</u> p-type dopant profile can withstand furnace anneals to temperatures of 850° C and rapid thermal armeal temperatures to 1000° C.

45.

- (Wi-hdrawn) The layered structure of claim 42 wherein said layer of SiGeC includes a n-type dopant in the range from about 1 x 10<sup>18</sup> to about 1 x 10<sup>21</sup> atoms/c.
- 43. (Withdrawn) The layered structure of claim 46 further including a layer of Si over said layer of p-type doped SiGeC, said p-type doped SiGeC/Si SiGeC : ayer and said Si layer define an interface having an abrupt change in C concentration above 1 x 10<sup>18</sup> atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said Si : ayer is less than 1 x 10<sup>17</sup> atoms/cc.
- 49. (Withdrawn) The layered structure of claim 48 wherein said p-type-doped-SiGeC/Si layer interface defined by said p-type doped SiGeC layer and said Si layer has having an abrupt change in dopant concentration above 1 x 10<sup>18</sup> atoms/cc over a layer thickness in the range from about 6 A to about 50 A.
- 50. (Withdrawn) The layered structure of claim 47 further including a layer of Si over said layer of n-type doped SiGeC, said n-type doped SiGeC5; SiGeC layer and said Si layer define an interface having an abrupt change in C concentration above 1 x 10<sup>18</sup> atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen it said Si layer: s less than 1 x 10<sup>17</sup> atoms/cc.

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(Withdrawn) The layered structure of claim 50 whereir, said n-type-coped-SiGoC/Si-layer interface defined by said n-type doped SiGeC layer and said Si layer has having an abrept change in dopant concentration above 1 x 10<sup>18</sup> atoms/so over a layer thickness in the range from about 6 A to about 60 A.

51.

(Withdrawn) The layered structure of claim 42 further including a layer of SiGe over said layer of SiGeC, said said SiGeC, sai

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- (Withdrawn) The layered structure of claim 46 further including a layer of SiGe over and layer of p-type doped SiGeC, seid p-type doped SiGeC/SiGe SiGeC layer and said SiGe layer define an interface having an abrupt charge in C concentration above 1 x 10<sup>18</sup> atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said SiGe layer is less than 1 x 10<sup>17</sup> atoms/cc.
- 54. (Withdrawn) The layered structure of claim 4? further including a layer of SiGe over said layer of n-type doped SiGeC, said n-type doped SiGeC/SiGe SiGeC layer and said SiGe layer define at interface having an abrupt change in C concentration above 1 x 10<sup>18</sup> atoms/cc over a layer thickness in the range from about 6 A to about 60 A and wherein the oxygen in said SiGe layer is less than : x 10<sup>17</sup> atoms/cc.
- 55. (Withdrawn) A layered structure comprising:

a substrate having an upper surface of single crystaline Si, and
a multitude of layers of materials selected from the group consisting of Si, SiGe,
SiC, and SiGeC over said upper surface, wherein seid multitude of layers comprise at
least one layer of SiC or SiGeC.

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said Si'SiC, SiAS-GeC, SiGesiSiC and SiGes'SiGeC layer multitude of layers and said upper surface of single crystalline Si define one or more interfaces having an abrupt change in C concentration above 1 x 1018 atoms/cc ever a layer thickness in the range from about 6 A to about 60 A,

and wherein the oxygen in said any carbon containing layer among said multitude of eyers is less than 1 x 10  $^{17}$  atoms/cc.

 (Withdrawn) The layered structure of claim 55 wherein said multitude of layers are single crystalline. 57. (Withdrawn) The layered structure of claim 55 wherein said multitude of layers are polycrystalline.

(Withdrawn) The layered structure of claim 55 wherein said carbon containing layers includes a p-type dopant in the range from about 1 x 10<sup>13</sup> to about 1 x 10<sup>21</sup> atoms/cc and wherein said carbon containing layer with said p-type dopant profile can withstand furnace anneals to temperatures of 850° C and rapid thermal anneal temperatures to 1000° C.

59. (Withdrawn) The layered structure of claim 55 wherein said carbon containing sayers includes a n-type dopant in the range from about 1 x 10<sup>18</sup> to about 1 x.
 :0<sup>21</sup> atoms/cc.

60. (New) A layered structure comprising:

a substrate having an upper surface of single crystalline Si, one or more layers of materials selected from the group consisting of Si, SiGe, SiC, and SiGeC over said upper surface, wherein said one or more material layers comprise at least one layer of SiC or SiGeC, and

said one or more material layers and said upper surface of single crystalline Si define one or more interfaces having an abrupt change in C concentration of more than 1 x 10<sup>18</sup> atoms/cc over a layer thickness in the range from about 6 Å to about 60 Å, and wherein the exygen in any carbon-containing material layer among said one or

more material layers is less than  $1 \times 10^{17}$  atoms/cc.

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